# Austin Energy

# PRIMARY SERVICE REQUIREMENTS

For

RADIAL UNDERGROUND PRIMARY SERVICES
150 AMPS OR LESS at12.5KV

The point of service shall be the Austin Energy (AE) line side cable termination in the pad mounted outdoor PRIMARY METERING CABINET(s) provided by the customer.

The Customer shall provide, install, own, and maintain **ALL** equipment after the point of service including the Primary Metering Cabinet, load side primary cable, transformers, fuses, conduit, and pull boxes.

If at any time, damage or failure occurs on any part of the customer's distribution system, Austin Energy will not make any repairs.

The PMC shall meet all applicable codes, standards and specifications such as, but not limited to the following standards:

ANSI C37.20 and IEEE Standard 27 Switchgear assemblies including metal-enclosed Bus.
ANSI C37.28 Utility Cabinet Security and Paint Integrity.
NEMA SG-5 Power Switchgear Assemblies.
National Electrical Code Article 710.21(e)
Underwriters Laboratories Switchgear assembly shall be UL listed to Certify that the Assembly has been tested to ANSI C37.20.

The equipment covered by this shall consist of 15 KV outdoor gang operated load interrupter switchgear with necessary metering compartments to form a single coordinated enclosed assembly with a common internally connected main 15 KV bus and ground bus assembly.

Under no circumstances shall the Customer purchase any equipment until all particulars of this document have been satisfied and written notification is received from AE.

**Customer will provide and install:**

Primary Metering Cabinet(s) (PMC) shall include separate padlockable compartments containing the line side cable terminating point, current transformers (CT's), potential transformers (PT's), and bus bar as needed for Austin Energy to terminate the line side primary cables. The PMC shall also

contain in a separate compartment an interrupting device capable of breaking full load current and current limiting devices that are coordinated with AE's distribution protective fusing requirements. One or both of these devices shall provide a visible disconnect. The design shall facilitate the placing of grounds, on the line side during AE maintenance operations. The Cabinet shall be grounded in accordance with National Electric Code. AE and Customer compartments shall be separated and on opposite sides of the PMC in a single cabinet design.

The door to the AE compartment shall be padlockable and equipped with a sealing hasp for AE.

On the Customers load side there shall be a means of externally gang opening/closing the load break interrupting device without the use of high voltage equipment such as a switch stick. The interrupting device handle shall be pad lockable.

Dead front 200 amp air insulated bushing well terminations shall be utilized for AE line side cable terminations. Each bushing shall have a parking stand level with the bushing. Bushing well spacing shall accommodate the use of feed through bushings for elbow type lighting arresters. Line side cable termination height shall be 30 inches minimum above finished concrete pad.

To facilitate cable pulling and installation of cable terminating devices, provisions shall be made for full access for easy positioning and removal of cable pulling devices and access without interference from structural members.

Doors providing access to interrupter switches with power fuses shall be provided with a wide-view window, constructed of an impact-resistant material, to facilitate checking of switch positions without opening door.

All doors shall be capable of being opened to a 90-degree position and held in that position with sturdy, positive -latching door holders.

The Customer shall install at a minimum two 5 inch conduit, with pull strings centered on the AE line side termination compartment for AE primary conductor.

All underground conduits entering the PMC shall have bell ends 1 inch above the finished concrete slab.

**The Customer shall provide and install fused potential transformers (PT's) and current transformers (CT's) in accordance with AE specifications.**

**a. Potential Transformer for 12470Y/7200 service shall be 60:1 ratio 110 kV BIL, 0.3% meter accuracy: GE Style number 765X023011 or equivalent.**

**b. CT's shall be 0.3% meter accuracy GE type JKM-5A (55°) or equal and specified by AE metering as required for the service electrical load.**

***The CT's and PT's shall be wired at the factory within the metering compartment to separate current and potential terminal blocks. The CT and PT terminal blocks shall be on the side of the cabinet located opposite the hinged side of the door. All wiring shall be #10 AWG copper and terminated with insulated ring type compression terminators.***

The current terminal block shall be six terminal shorting type. The wiring shall conform to the AE standard color code as per listed below:

| **Phase Identification Current** | **Terminal Block Position (Left to Right)** | **Wire Color Code** |
|---|---|---|
| Current (AØ) | 1 | Red |
| Current Return (AØ) | 2 | Red |
| Current (BØ) | 3 | Black |
| Current Return (BØ) | 4 | Black |
| Current(CØ) | 5 | Green |
| Current Return (CØ) | 6 | Green |

The Potential Transformer terminal block shall be a four terminal type. The wiring shall conform to AE standard color code as listed below:

| **Phase identification Voltage** | **Terminal Block Position (Left to Right)** | **Wire Color Code** |
|---|---|---|
| Voltage (AØ) | 1 | Orange |
| Voltage (BØ) | 2 | Yellow |
| Voltage (CØ) | 3 | Blue |
| Voltage Return (Ground/Neutral) | 4 | White |

The Primary Metering Cabinet shall be installed adjacent to the customer's 12.5KV transformer.

A clearance of at least five (5) feet must be maintained on each side of the PMC. Additionally a clearance of ten (10) feet must be maintained in front of any switch.

The customer shall mount a 13 Terminal Meter socket with 10 pole test switch on a separate stand installed on a pad adjacent to the PMC pad similar to Appendix C-Exhibits Figure 1-11a and 1-11c for secondary metering installed in the secondary compartments of padmounted transformers. The meter shall be installed 48" minimum to 72" maximum to the center of the meter above finished

concrete grade. A 1 1/4-inch schedule 80 or rigid conduit shall be provided for the CT and PT wiring from the PMC to the meter socket.

Should the Customer request the Interval Data recorder meter, a telephone service shall be provided to the meter socket for AE's use. This service shall be coordinated with AE Key Accounts and AE metering.

Should the Customer request Pulse Output meter, a contract must be entered into and a fee paid. This service shall be coordinated with AE Key Accounts and AE metering.

The Customer will provide and install all primary conduits and pull boxes from the Austin Energy riser pole to the Primary Metering Cabinet. Austin Energy inspectors must accept (this duct structure) in accordance with the City of Austin Utilities Criteria Manual.

**The Customer shall submit two (2) copies of detailed shop drawings to AE's Customer Service planning for approval. The drawings shall include:**

**a. Detailed switch, fusing mounting configuration.**
**b. Detailed AE line termination configuration.**
**c. Detailed metering compartment and line side termination compartment.**
**d. PT and CT mounting and wiring configuration with manufacture technical data sheets.**
**e. Professional Engineer licensed in the State of Texas approved 1-line diagram of the PMC and electrical distribution system.**
**f. Nameplate rating label.**
**g. Fuse manufacture, type, rating, curves and catalog number.**
**h. Manufacturer certified test reports shall be provided to AE design and metering for PT'S and CT's prior to energizing the PMC.**

The AE approval may take up to (20) working days. The AE construction drawings will not be released to the customer prior to the approval by AE of the shop drawings.

**Austin Energy will provide, maintain, and install:**

- The 12.5KV primary cable to the Primary Metering Cabinet from the Austin Energy riser pole.

- The Austin Energy primary cable terminations at the Primary Metering Cabinet.

- Austin Energy shall be responsible for maintaining AE meters. AE is not responsible for the PMC cabinet, switches or primary fuses in the PMC and metering equipment (CT's & PT's).

Austin Energy will provide the following information to aid in the customer's design of the customer owned distribution system:

a. Primary service voltage with maximum and minimum +/- 10% variation from nominal is acceptable.
b. Maximum possible fault currents available at the point of supply.
c. Coordinating information relating to proposed protective equipment to be located on that portion of the Austin Energy distribution system so that the customer may specify the proper protective equipment for the customer owned distribution system. The fuse size will be specified to the customer when the PMC is approved.
d. Due to AE's electrical system configuration the largest fuse AE and the customer can obtain proper coordination, in most instances is an S&C Electric 100E, SM-4 type of fuse in the PMC.
e. Should AE not be able to coordinate as outlined in d. above, AE will evaluate the service and make recommendations.
f. The above fusing is achievable only when the service is on AE main line. Should the service not be served from AE main line AE Planning and System Engineering will evaluate the service and make recommendations.
g. Location of metering equipment.

**Suggested Equipment** Austin Energy suggests that the Customer consider a PMC as listed below or Equivalent:

PARK Detroit- 1-313-366-220 - Catalog number PM123-15-SM20 Drawing number 16802-1 & 16802-2